

Figure 1

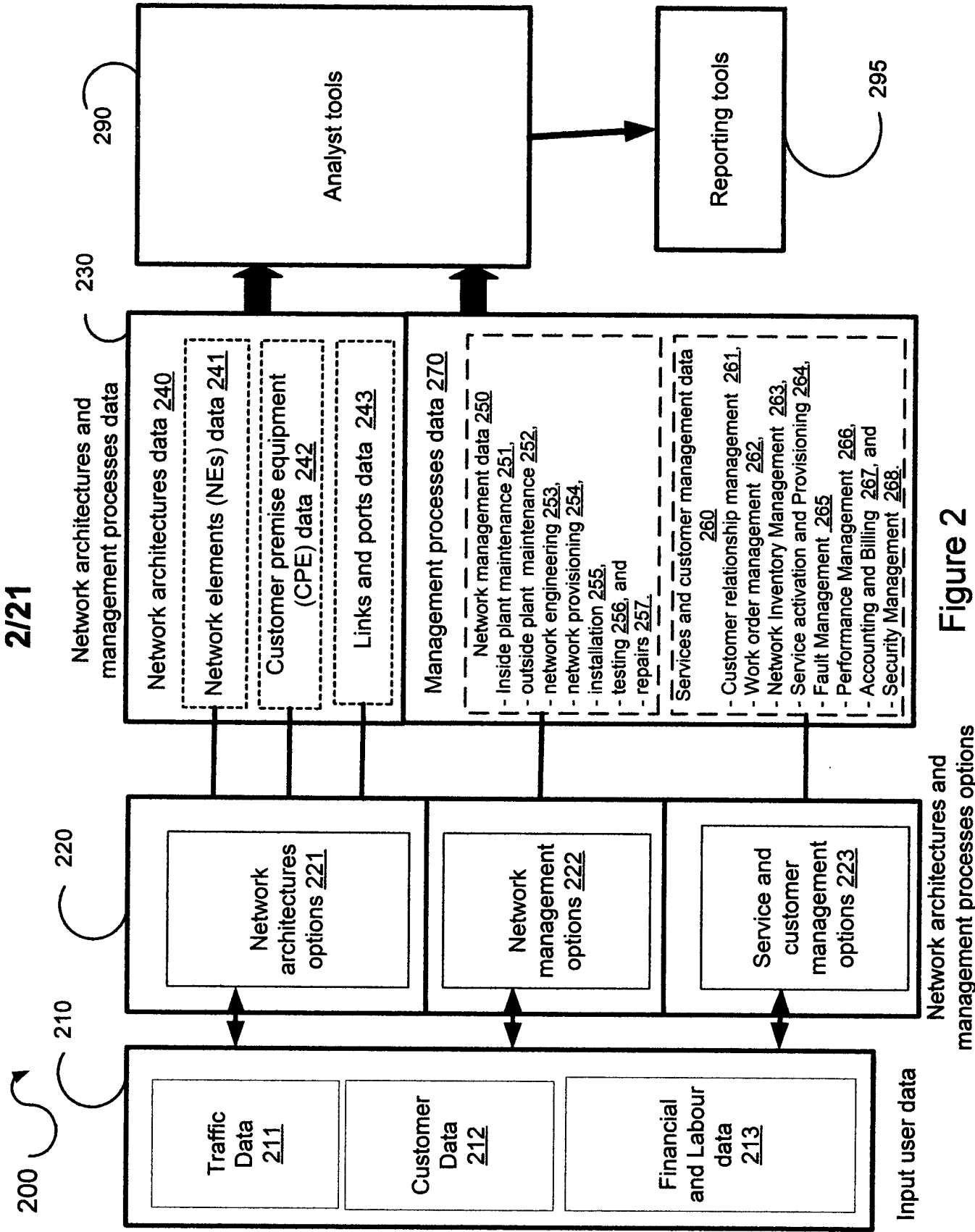


Figure 2

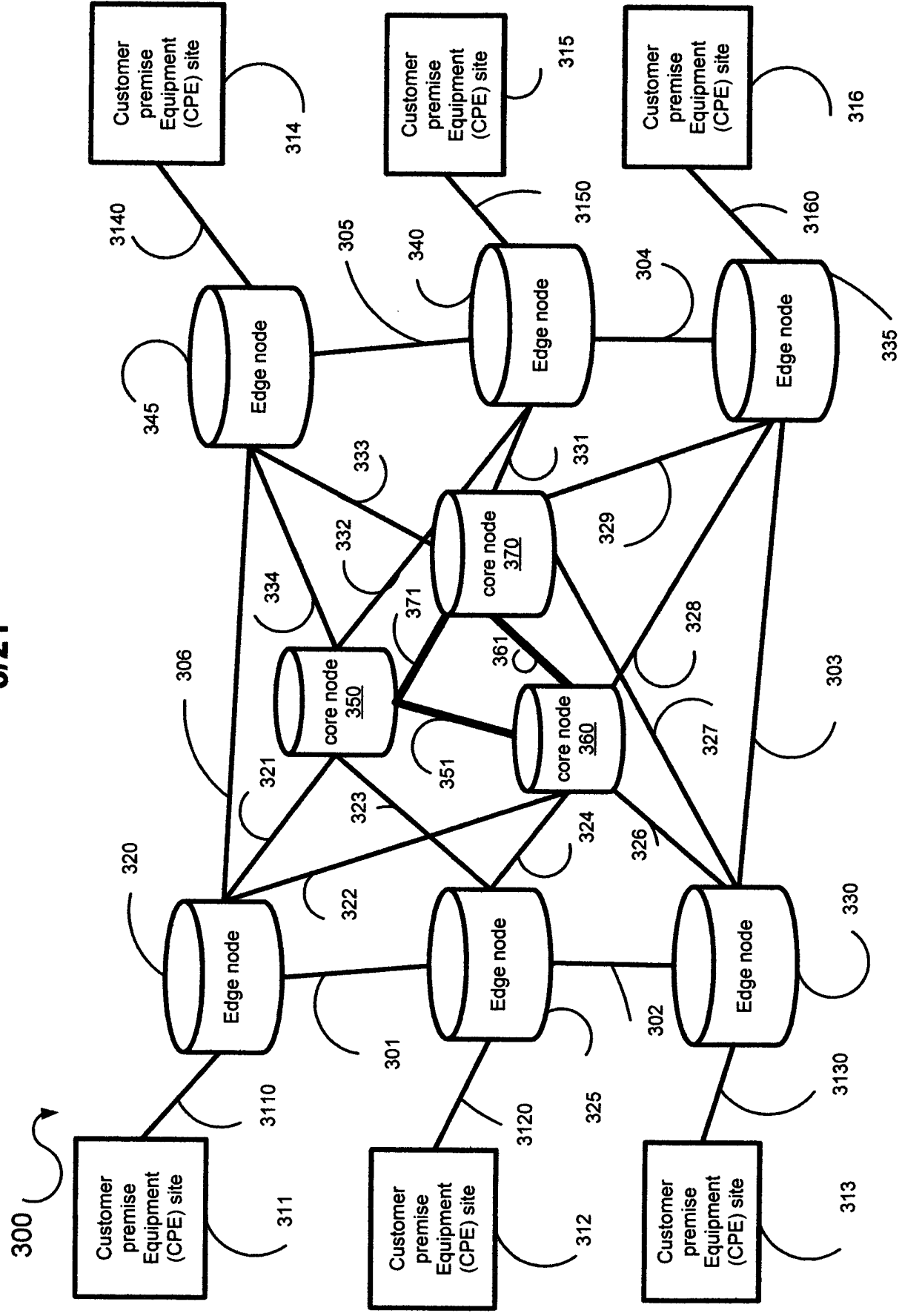


Figure 3

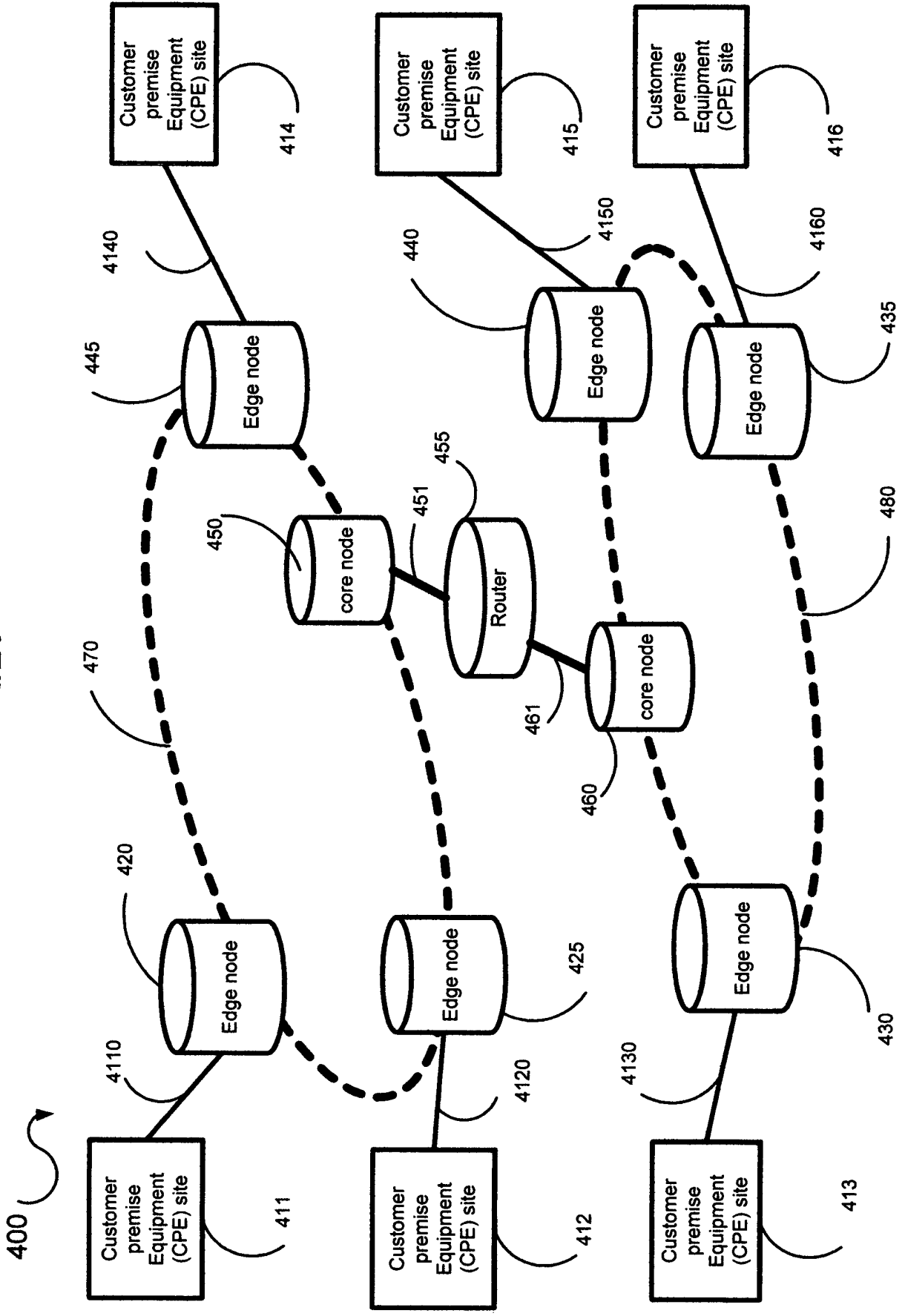


Figure 4

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500 

Network Elements (NEs) data

		Owned NEs data 514			Leased NEs data 516			Footprint per NE cost 570	Total footprint cost 575	Power consumption per NE cost 585	Total power consumptions cost 590
		Owned NEs Count 550	Price per NE 555	Total owned NEs cost 560	Leased NEs count 563	Leased per NE cost 565	Total leased NEs cost 580				
NEs Inventory 510											
Network architecture 1 (ARCH1) 520	Switching nodes 521										
	Supplier A 501										
	Services nodes 522										
	Add/Drop nodes 523										
	Cross-Connect nodes 524										
	Supplier B 502										
	Other nodes 525										
	Supplier C 503										
	ARCH1 totals 526										
	Switching nodes 531										
Network architecture 2 (ARCH2) 530	Supplier A 504										
	Services nodes 532										
	Add/Drop nodes 533										
	Cross-connect nodes 534										
	Supplier B 505										
	Other nodes 535										
	Supplier C 506										
	ARCH2 totals 536										
	Switching nodes 541										
	Supplier A 507										
Network architecture 3 (ARCH3) 540	Services nodes 542										
	Add/Drop nodes 543										
	Cross-connect nodes 544										
	Supplier B 508										
	Other nodes 545										
	Supplier C 509										
	ARCH3 totals 546										
	Switching nodes 551										
	Supplier A 510										
	Services nodes 552										

Figure 5

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Customer premise equipment (CPE) data

600 

		Owned CPE data 614				Leased CPE data 616			Footprints per CPE cost 670	Total footprints cost 675	Power consumptions per CPE cost 685	Total power consumptions cost 690
		Owned CPE Count 650	Price per CPE 655	Total owned CPE cost 660	Leased CPE Count 663	Leased per CPE cost 665	Total leased CPE cost 680					
CPE Inventory 610												
Network architecture 1 (ARCH1) 620	Supplier A 601	Ethernet switch 621										
	Supplier B 602	Router 622										
		Terminal 623										
	Supplier C 603	Other 624										
		ARCH1 totals 625										
N twork architecture 2 (ARCH2) 630	Supplier A 604	Ethernet switch631										
	Supplier B 605	Router 632										
		Terminal 633										
	Supplier C 606	Other 634										
		ARCH2 totals 635										
Network architecture 3 (ARCH3) 640	Supplier A 607	Ethernet switch 641										
	Supplier B 608	Router 642										
		Terminal 643										
	Supplier C 609	Other 644										
		ARCH3 totals 645										

Figure 6

Links and ports data

[illegible]

Figure 7

800 ↪

Customer relationship management (CRM) data

Process name <u>810</u>	Process cost per link <u>820</u>		
	Manual operations mode <u>830</u>	Mechanized operations mode <u>840</u>	Manual and mechanized operations mode <u>850</u>
Work order entry and validation process <u>811</u>			
Service delivery and work order processing process <u>812</u>			
Customer Care (e.g., security, tool, etc.) process <u>813</u>			
Trouble Ticketing process <u>814</u>			
Service assurance and performance reporting process <u>815</u>			

Figure 8

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Work Order Management (WOM) data

Process name <u>910</u>	Process cost per link <u>920</u>		
	Manual operations mode <u>930</u>	Mechanized operations mode <u>940</u>	Manual and mechanized operations mode <u>950</u>
Work order processing process <u>911</u>			
Client management (e.g., order display, searches, lists, etc.) process <u>912</u>			
Report management (e.g., online reports, view reports, store, print, etc.) process <u>913</u>			
Administration management (e.g., user groups, roles, privileges, etc.) process <u>914</u>			

Figure 9

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1000



Network Inventory Management (NIM) data

Process name <u>1010</u>	Process cost per link <u>1020</u>		
	Manual operations mode <u>1030</u>	Mechanized operations mode <u>1040</u>	Manual and mechanized operations mode <u>1050</u>
Customer, services, and resources association management (e.g., information, assign, and design tasks) process <u>1011</u>			
Equipment management (e.g., bays, shelf, and card assign and design tasks) process <u>1012</u>			
Network management (e.g., create and delete domain, inventory, assign and design tasks) process <u>1013</u>			

Figure 10

1100



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Service activation and provisioning (SAP) data

Process name <u>1110</u>	Process cost per link <u>1120</u>		
	Manual operations mode <u>1130</u>	Mechanized operations mode <u>1140</u>	Manual and mechanized operations mode <u>1150</u>
Create a new service process <u>1111</u>			
Customer association (e.g., customer data, services, and network updates, audit, trail, etc.) process <u>1112</u>			
Process for alignment and synchronization of billing, maintenance and performance <u>1113</u>			
Resource discovery and database quires process <u>1114</u>			

Figure 11

1200



Fault Management (FM) data

Process name <u>1210</u>	Process cost per link <u>1220</u>		
	Manual operations mode <u>1230</u>	Mechanized operations mode <u>1240</u>	Manual and mechanized operations mode <u>1250</u>
Trouble ticketing process <u>1211</u>			
Isolate problem process <u>1212</u>			
Analysis and resolution of service logic agreement (SLA) process <u>1213</u>			

Figure 12

1300



Performance Management (PM) data

Process name <u>1310</u>	Process cost per link <u>1320</u>		
	Manual operations mode <u>1330</u>	Mechanized operations mode <u>1340</u>	Manual and mechanized operations mode <u>1350</u>
Collect performance data (e.g., ES, SES, QoS, UAS, etc.) process <u>1311</u>			
Generate performance reports process <u>1312</u>			
Validate service logic agreement (SLA) process <u>1313</u>			

Figure 13

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1400 ↗

Network management data

↖ 1430

Process name <u>1450</u>		Process cost per NE <u>1460</u>	
Manual operations mode <u>1470</u>	Mechanized operations mode <u>1480</u>	Manual and mechanized operations mode <u>1490</u>	
Inside plant maintenance <u>1451</u>			
Outside plant maintenance <u>1452</u>			
Network engineering <u>1453</u>			
Network provisioning <u>1454</u>			
Installation <u>1455</u>			
Testing <u>1456</u>			
Repairs <u>1457</u>			

Architecture name <u>1413</u>	Options <u>1415</u>
ARCH1 <u>14131</u>	1
ARCH2 <u>14132</u>	1
ARCH3 <u>14133</u>	1
ARCH4 <u>14134</u>	1
ARCH5 <u>14135</u>	1
ARCH6 <u>14136</u>	0
ARCH7 <u>14137</u>	0
ARCH8 <u>14138</u>	0
ARCH9 <u>14139</u>	0
ARCH10 <u>14140</u>	0

Network Architectures options

Process name <u>1423</u>	Options <u>1425</u>
CRM <u>14231</u>	1
WOM <u>14232</u>	1
NIM <u>14233</u>	1
SAP <u>14234</u>	1
FM <u>14235</u>	1
PM <u>14236</u>	1
Billing & Accounting <u>14237</u>	0
Security Management <u>14238</u>	0

Service & customer management options

Figure 14

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Network management options 1510

Process name <u>1505</u>	Options <u>1515</u>
Inside plant maintenance <u>15051</u>	1
Outside plant maintenance <u>15052</u>	0
Network engineering <u>15053</u>	1
Network provisioning <u>15054</u>	1
Installation <u>15055</u>	0
Testing <u>15056</u>	1
Repairs <u>15057</u>	1

1530 Customer data

Parameter name <u>1533</u>	Value <u>1535</u>
Number of customer sites per NE <u>15331</u>	
Number of buildings <u>15332</u>	
Building entry cost <u>15333</u>	
Leased per building cost <u>15334</u>	

Traffic data

1520

Parameter name <u>1523</u>	Value <u>1525</u>
Revenue per Mbps <u>15230</u>	
Percentage revenue generated bandwidth <u>15231</u>	
Average busy hour traffic per user (bps) <u>15232</u>	
Percentage intra-domain traffic <u>15233</u>	
Percentage inter-domain traffic <u>15234</u>	
Mean duration of a voice call (seconds) <u>15235</u>	
Payload rate per user (bps) <u>15236</u>	
Percentage voice link utilization <u>15237</u>	
Percentage increase in capacity <u>15238</u>	
Average bandwidth per link (Mbps) <u>15239</u>	

Figure 15

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Financial and labour data

Parameter name <u>1610</u>	Value <u>1630</u>
Depreciation period in a pre-defined time period <u>1611</u>	
Cost of capital (Interest rate) in the pre-defined time period <u>1612</u>	
Percentage Sales, general, & administration (SG&A) in the pre-defined time period <u>1613</u>	
Tax rate in the pre-defined time period <u>1614</u>	
Percentage salvage value in the pre-defined time period <u>1615</u>	
Life time period <u>1616</u>	
Total number of payments in the pre-defined period <u>1617</u>	
Operations error rate in the pre-defined time period <u>1618</u>	
Percentage lost opportunity revenue in the pre-defined time period <u>1619</u>	
Percentage operating margin in the pre-defined time period <u>1620</u>	
Dedicated work hours per day <u>1621</u>	
Days per month <u>1622</u>	
Months per year <u>1623</u>	
Loaded labour rate per hour <u>1624</u>	
Installer travel cost <u>1625</u>	
Connection to customer's patch panel per link cost <u>1626</u>	

Figure 16

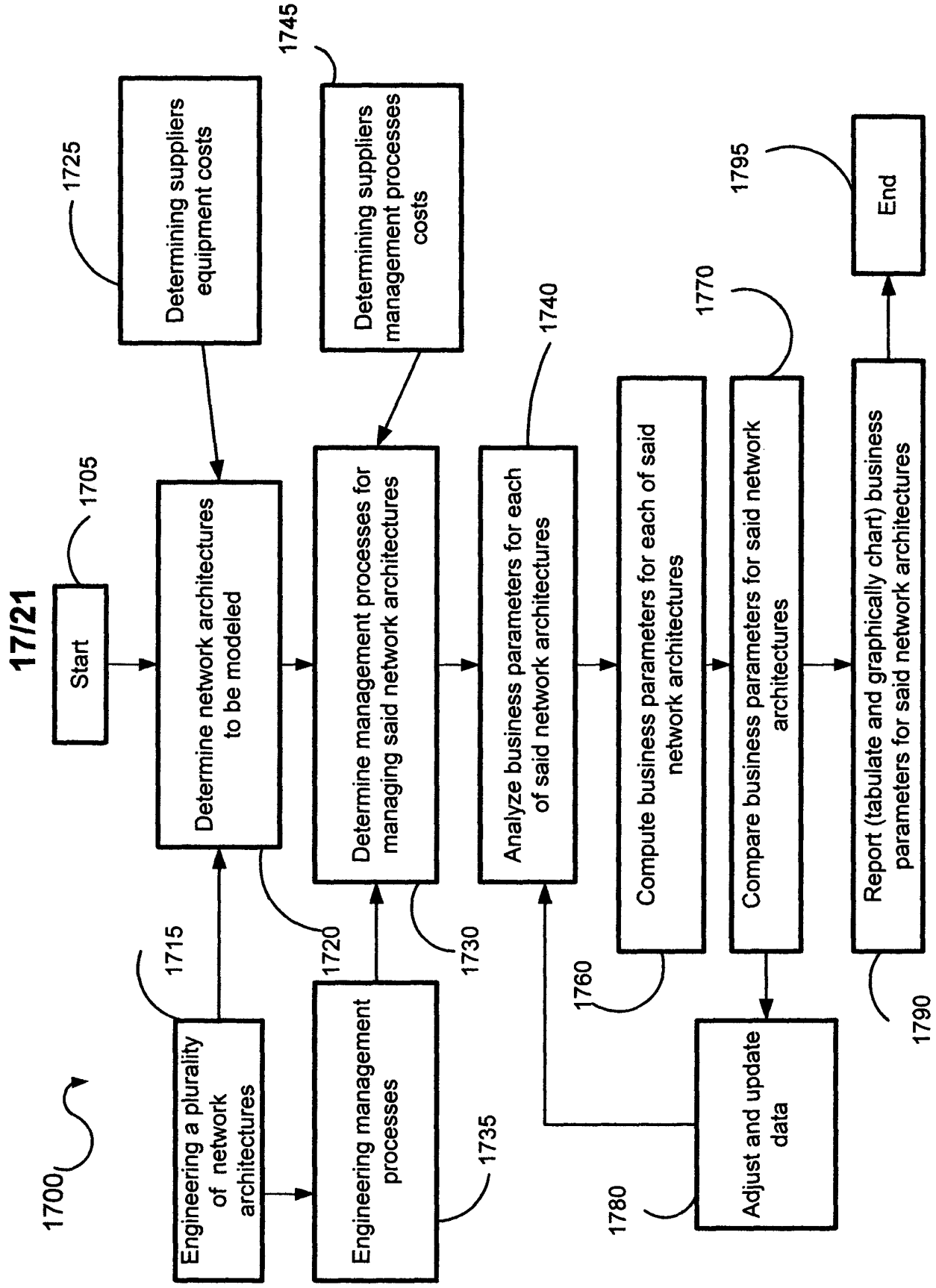


Figure 17

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1800

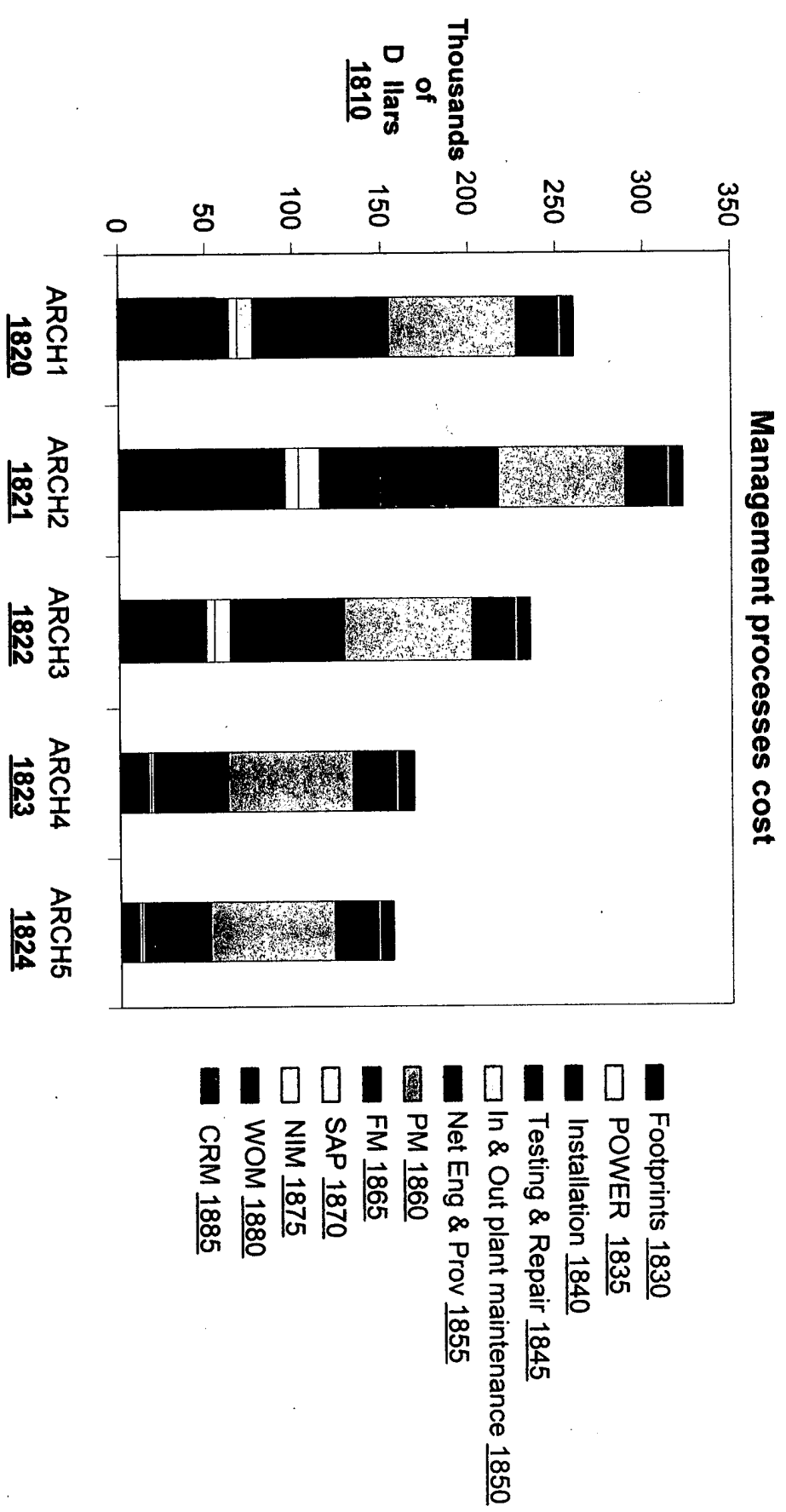


Figure 18

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1900

Total (CAPEX + OPEX) Expenditure

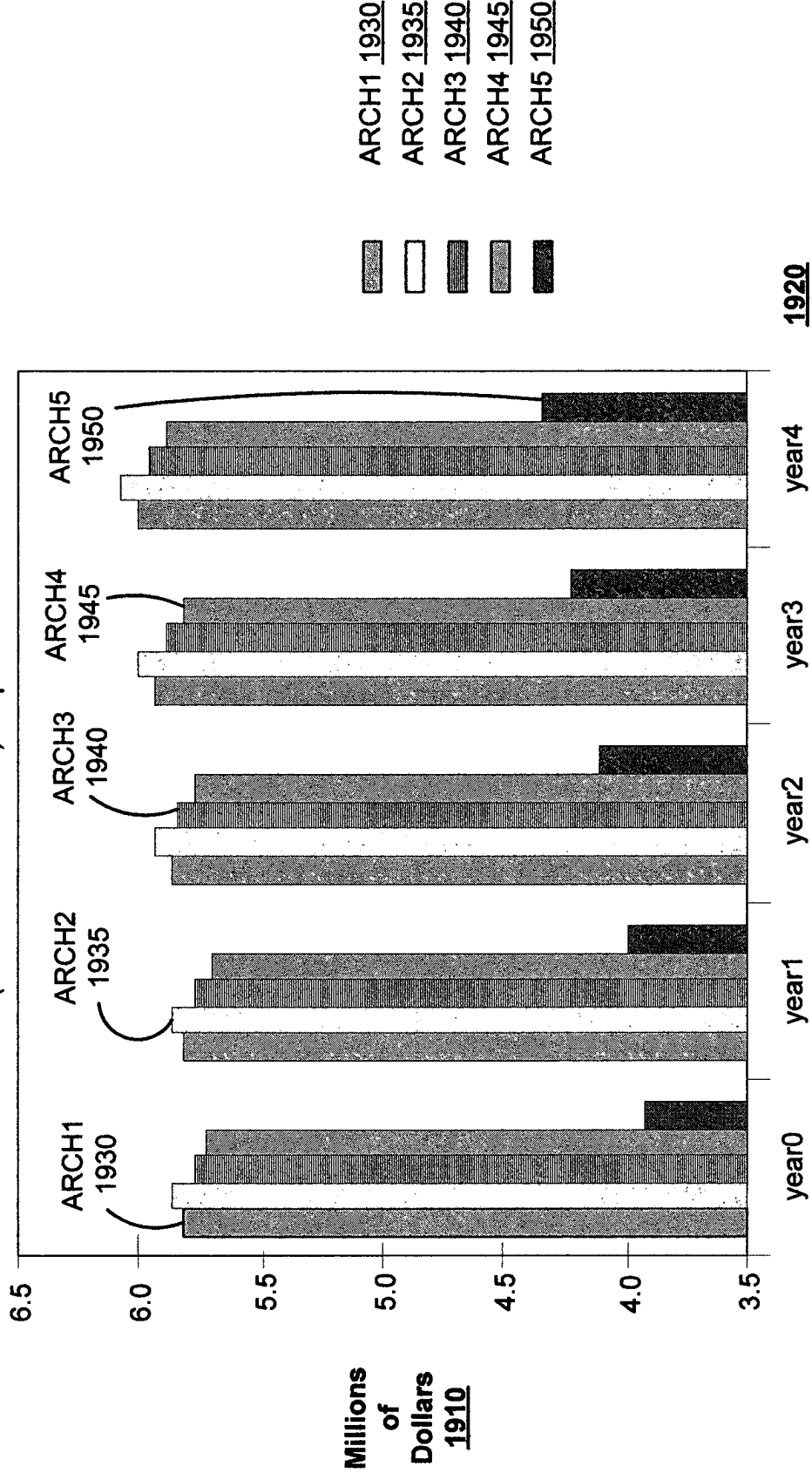


Figure 19

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2000

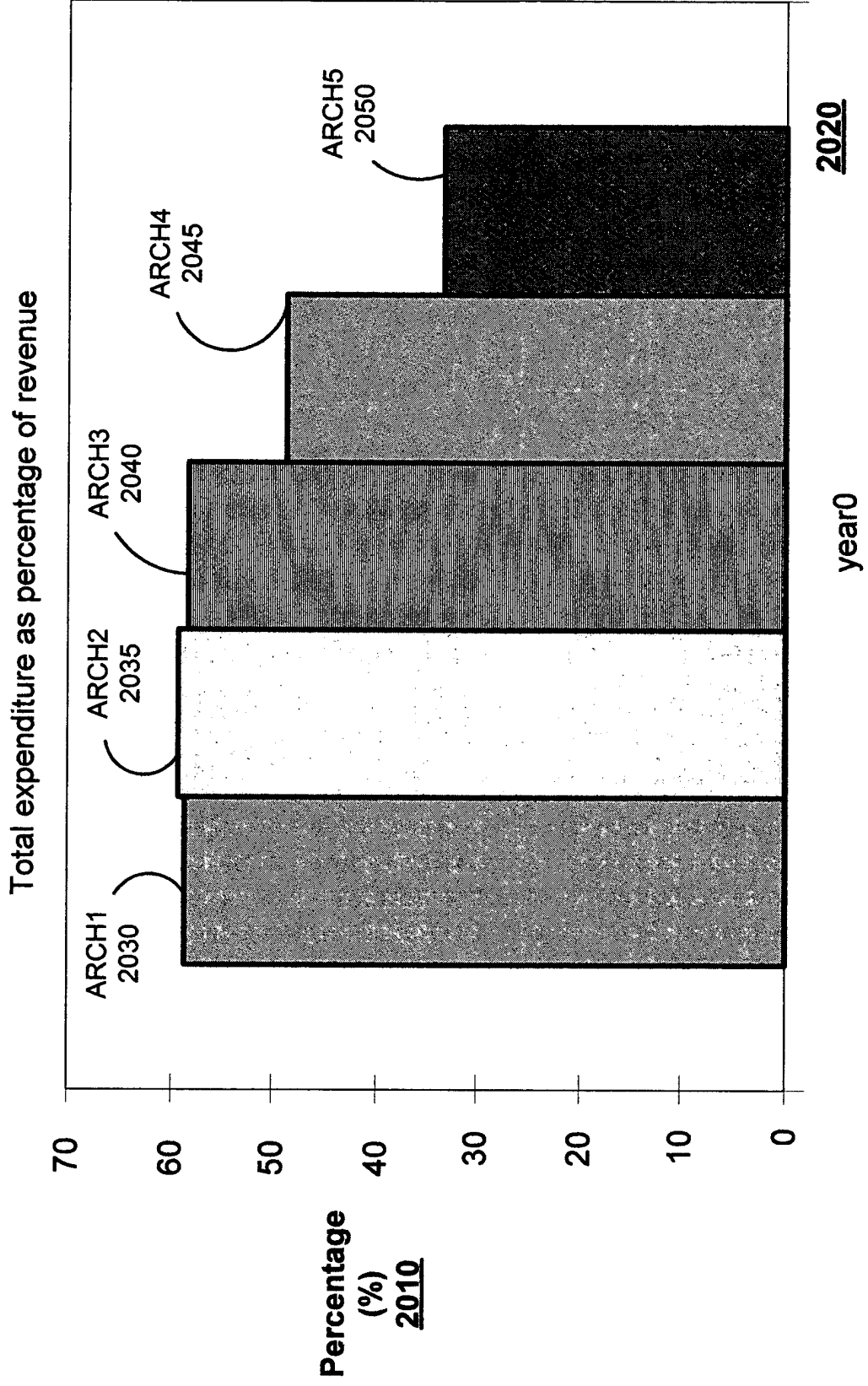


Figure 20

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2100 ↗

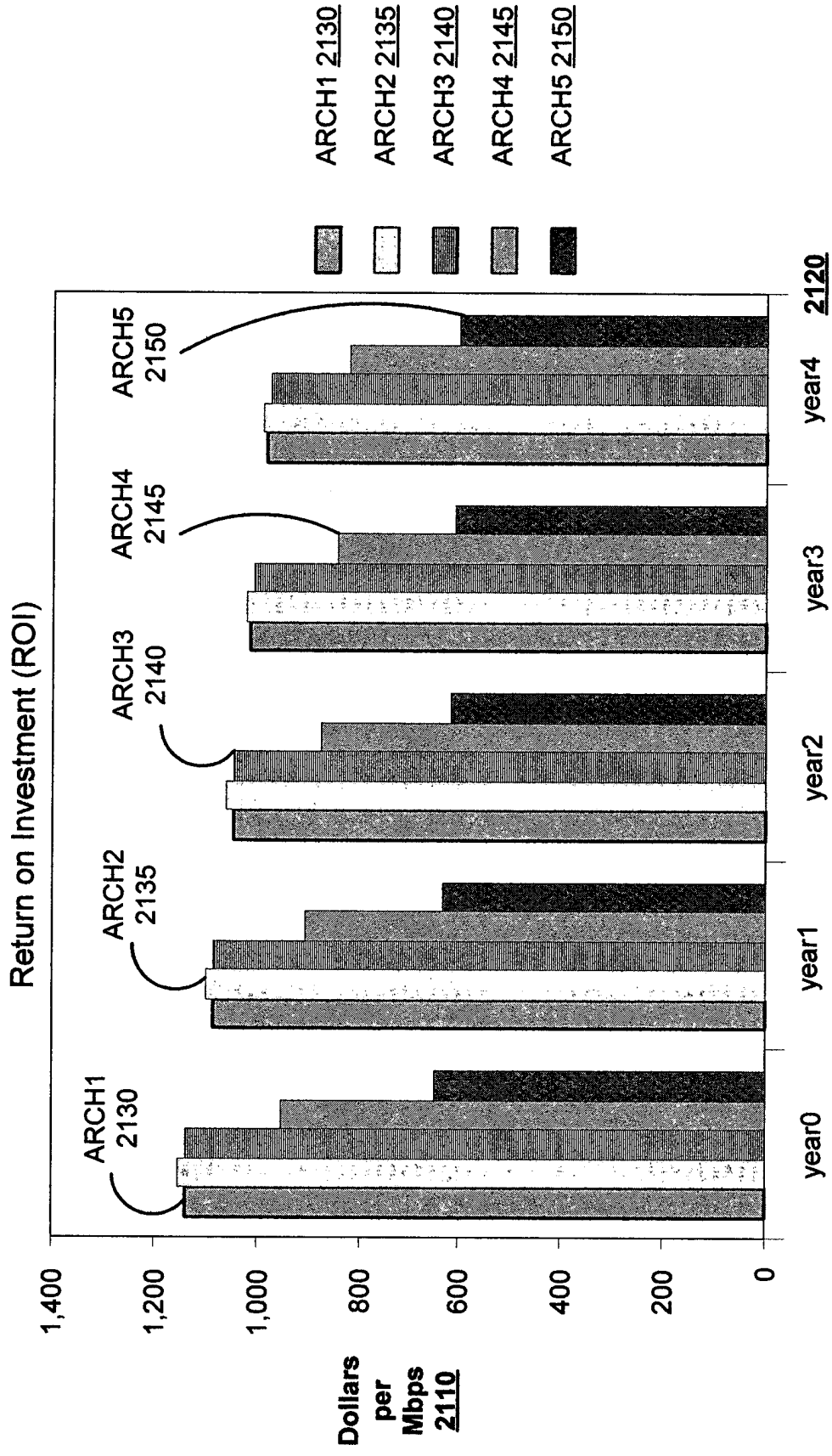


Figure 21